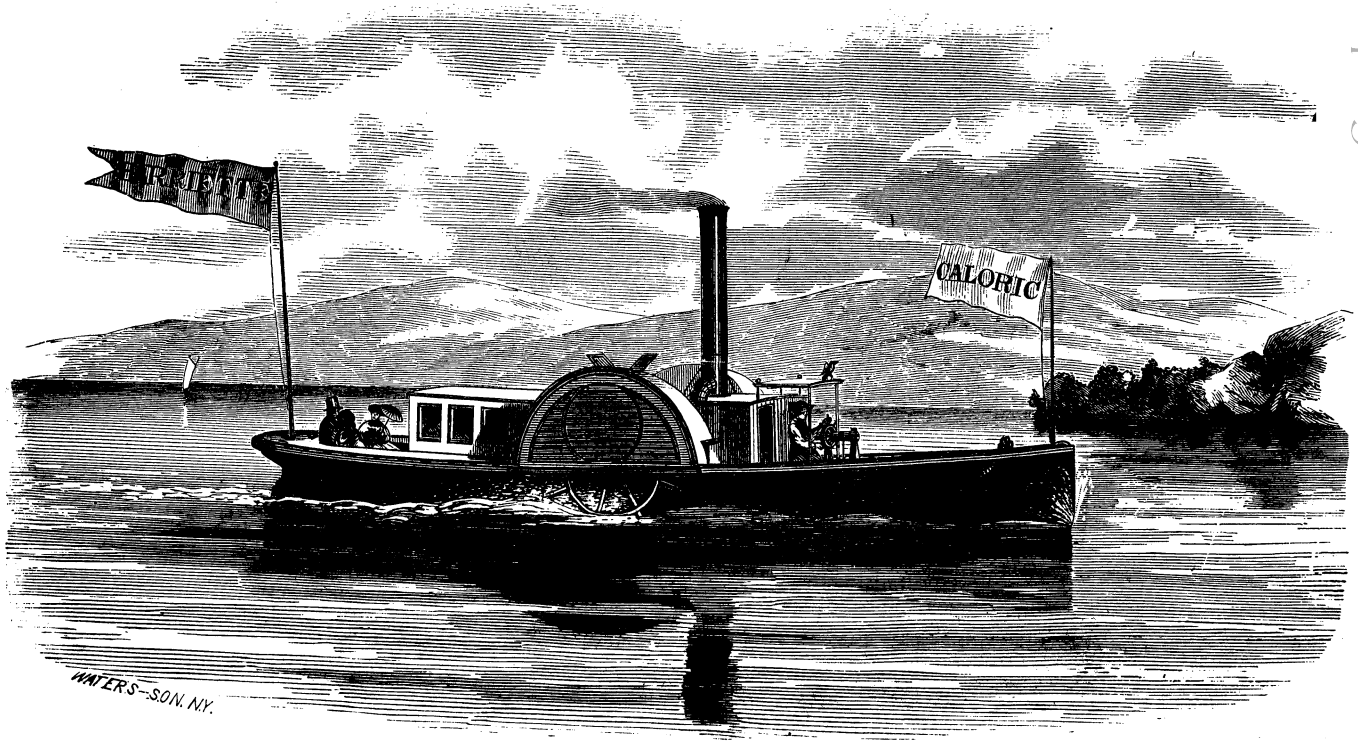
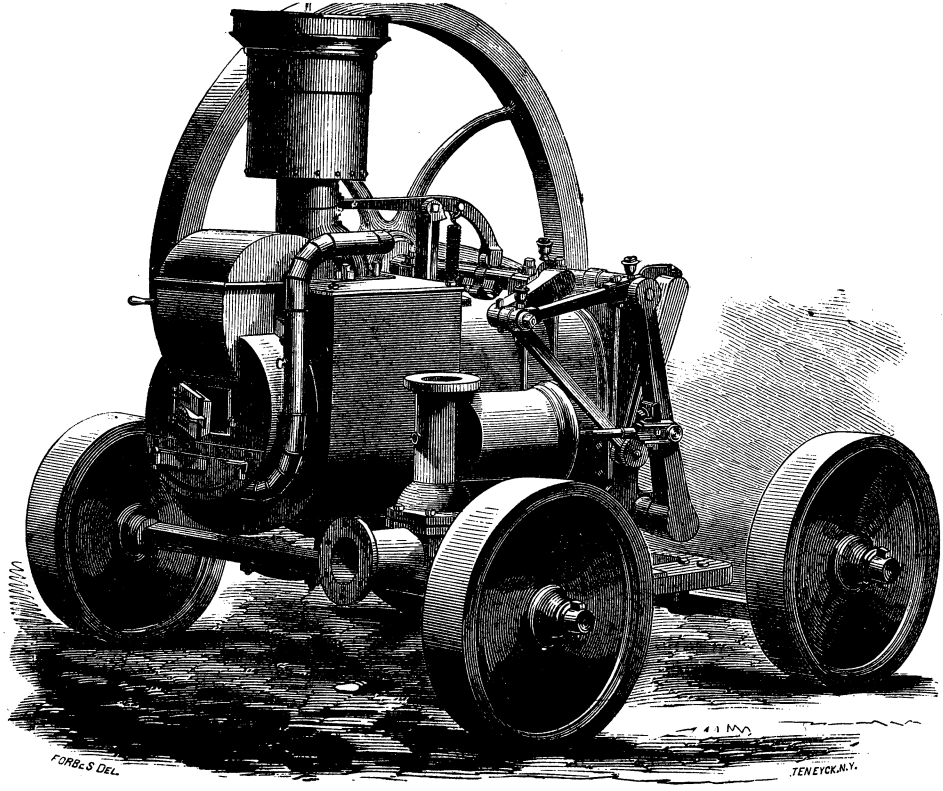
ERICSSON'S

Caloric Engine



CALORIC YACHT "HARRIETTE."

Length, 40 feet. Beam, 7 feet between perpendicular [illegible] feet including guards. Single 24-inch Engine. Consumption of coal, 1 bushel per day.



PORTABLE PUMPING ENGINE.

The exhaust air carried under the grate, dispensing with a chimney.

ERICSSON'S

CALORIC ENGINE.

GENERAL AGENCY AND DEPOT

FOR THE SALE OF CALORIC ENGINES

164 Duane Street, corner of Hudson, New York.

JNO. B. KITCHING.

New York:

FRENCH & WHEAT'S CALORIC PRESSES, 18 ANN ST.

1860.

ERICSSON'S

CALORIC ENGINE.

INEXPLOSIVE — ECONOMICAL — EASILY MANAGED — REQUIRES NO ENGINEER!—USES NO WATER—CONSUMES LITTLE FUEL—IS ADAPTED FOR ALL KINDS OF MECHANICAL AND AGRICULTURAL LABORS.

THIS Motor may be confidently pronounced one of the greatest boons which the ingenuity of man has ever bestowed upon his race.

From the earliest ages, the unreliable and fluctuating powers of wind and water have been employed as motive agents. Recently, the more certain, but dangerous power of Steam, has been brought to labor for man.

But now, for the first time, the common atmosphere is practically employed in doing human drudgery, and in saving the sinews, limbs and lives of the toiling millions. It is made to operate, a harmless, controllable, certain, and universal Motor.

ERICSSON'S CALORIC ENGINE is no longer a subject of experiment, but exists as a perfect, practical machine, daily at work in numerous and diversified uses, with undeviating success.

I. Within the limit claimed for the Motor, its power is certain, uniform and entirely sufficient.

II. The Machine is not attended with the numerous perils that attach to the Steam Engine, and make it so uncomfortable and dangerous a servant; but, on the contrary, it is absolutely free from danger.

III. It requires no engineering supervision. Any person may take charge of it, or it may be kept in action by a few minutes' attention of the workman who is using its power.

IV. It consumes a very small amount of fuel, say 33 per cent. of the Steam Engine, and requires no water.

V. Does not raise the rate of Insurance.

It is employed for job printing, and printing daily newspapers; working hoisting gear for warehouses, docks

and ships ; mills of various descriptions ; pumps of all kinds, from those used in raising water in houses for domestic use, and those employed at railway stations, mines, and for pumping ships ; also, for purposes of irrigation, and supplying villages with water. It has been tested with perfectly satisfactory results in the propulsion of boats and pleasure yachts, and is practically employed in bakeries, tanneries and wire-making establishments ; by book-binders, cabinet makers, and curriers ; for box-wood cutting ; for driving fans to ventilate buildings ; for elevating grain, cutting glass, grinding quartz, grinding paints, grinding sugar cane on plantations in Cuba ; for propelling knitting and sewing machines, by manufacturers of plated ware, of printers' materials, of silver ware, of agricultural implements, of matches, of hooped skirts ; for picking hair, for polishing combs, for shoemakers' uses ; for wood turning, for sawing and planing lumber ; for sand sifting, tobacco cutting, and tobacco pulverizing ; for soda water manufacture ; for bone crushing, malt mashing, towing, grinding cutlery ; roasting, grinding and pulping coffee ; for ginning cotton, grinding corn, cutting feed, domestic sawing, and for the various operations of farms and plantations.

Coppersmiths, workers in all the metals, and workers in all the forms of human industry, will find that the fuel which warms their workshops, may, at the same

time, perform labor for them in the most efficient manner, by being made to actuate a Caloric Engine.

Indeed this Engine is of universal application, wherever a limited, economical, safe, independent, and self-managed motive power is desired.

About five hundred of these Engines, of the various sizes, are already in use.

NEWSPAPER CLIPPINGS.

"The attention of the craft is cordially invited to the use of these Engines."—*Mercantile Advertiser, Schenectady, N. Y.*

"Caloric Engines are now manufactured to meet the already extensive and rapidly growing demand for pumping, hoisting, grinding, printing, and other purposes, where a steady and reliable power is required, coupled at the same time with extreme economy of fuel, perfect freedom from danger, and altogether dispensing with the attendance of an engineer."—*American Mining Chronicle.*

"The Caloric Engine seems to be the greatest invention which the mind of man ever conceived."—*N. Y. Day Book.*

"We have one of these much-talked-of hot-air motors in our office, and it is successfully running the presses. It runs much steadier than our little steam engine, and is of sufficient power to do all our work."—*Vicksburg Daily Whig.*

"We do not like to say all we think about this motor, lest we should be called an enthusiast; but we really believe the Caloric Engine is destined to produce a perfect revolution in mechanics, by making the power to drive machinery so safe, so cheap, and so simple, as to induce manufacturing in southern communities, where the wages of an engineer to run a steam engine makes it such an expensive operation as to preclude the possibility of successfully competing with northern manufacturers located in cities, who make a great

saving by hiring power at a small cost from the owner of a large engine conveniently located for their purposes."—*Norfolk (Va.) Day Book.*

"For convenience, safety, and economy, the engine cannot be surpassed."—*German Reformed Messenger, Chambersburgh, Pa.*

"When we first started this engine we thought it a wonderful piece of machinery—that wonderment has increased day by day. Why not? The longer we use it the better it goes."—*Cincinnati Press.*

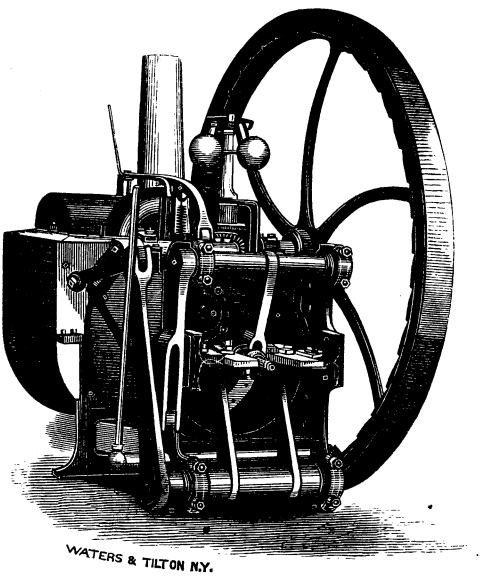
"It works like a charm. Its great economy, safety, and simplicity, are arguments in its favor, strong and powerful."—*Ogdensburgh, (St. Lawrence,) Democrat.*

"The advantages of it to the farmer are, that it is simple in action, and durable; it may be set in any convenient place where a stove may be set, requiring no great skill of engineering to run it, as almost any one who can build a fire can tend it; it requires no water nor pumping to fill it, nor is there any bursting the boiler and scalding people to death. Wood or coal may be used for fuel. It might be used by a farmer to thrash his grain, saw his wood, cut his hay or straw, grind his provender, turn his churn, washing machine, and his grindstone, pump water for him, turn a lathe. For stationary work, such a machine is worth more than any two horses you can find. With this machine and a little coal, a vast amount of farm and domestic drudgery may be done in a year."—*Maine Farmer.*

"Our Caloric Engine answers all our expectations. It is *the* thing."—*Northampton Gazette.*

"The perfect simplicity, absolute safety, rigid economy, and admirable regularity of this motor, commend it to all who wish for these qualities combined in one machine."—*Hartford Daily Post.*

"We finally got our little Caloric Engine to work last night, and we are more than satisfied with its performances. It will answer all of our purposes."—*Montgomery, (Ala.) Post.*



EIGHTEEN INCH CALORIC ENGINE.

"We now work a 24-inch cylinder from Mr. Kitching's own factory, which he jocosely dubbed *Cruiser, jr.* Really, he should have named it *The Vindicator*, for it convinces every one who sees it work, that the *Caloric Engine* is the cheapest, pleasantest and safest motor in the world."—*Montgomery, (Ala.) Mail.*

In our printing office, we have as a motive power, one of Ericsson's Caloric Engines. It is a beautiful specimen of machinery, and is the safest and most economical power in existence. No one should leave the city without seeing this wonder of the nineteenth century. It turns all our Power Presses.

MILLS BROTHERS,

Des Moines, Iowa.

TESTIMONY OF THE PRESS.

[From the Boston Transcript.]

NEW MOTOR FOR SEWING MACHINES.

One of the most important inventions of the age, for the lightening of human labor, has recently been put in practice in the extensive clothing establishment of Messrs. Carhart & Payan, in the city of New York. We refer to the use of Ericsson's Caloric Engine, in the operation of sewing machines. The engine is employed to pump air into a tank or reservoir, from which it is transmitted by tubes to the treadle of the machine by a contrivance which enables the operator, by merely turning a regulator, to set it in motion and graduate its speed. This dispenses entirely with the use of the foot and leg of the operator, the action of which, during the long hours of a working day, is always painful, and frequently so distressing as to drive some of the best work-women from the employment.

By the new system the operator is enabled to devote her exclusive attention to the material she is employed upon, and the guidance of the needle, so that she accomplishes in a given time a much larger amount of work. The new motor has been applied to twenty machines in the New York establishment, and the result is the increase of the effective power of the operator from fifty to seventy-five per cent. The average increase of production in an establishment employing two or three hundred hands is of such manifest importance as to compel the universal introduction of the new motor.

Many years ago, Captain Ericsson carried out a series of experiments in London on the best modes of transplanting and transmitting power, the result of which furnished him with valuable hints in the

important, economical and sinew-saving process, by which the toil of the sewing-woman is so beneficently alleviated. The application of the new power fortunately requires no substantial change in existing machines, and any of them may be readily adapted to receive the motor. Captain Ericsson retains the invention under his exclusive control, so that it cannot be monopolized by any one of the numerous sewing-machine patentees to the detriment of his rivals.

[From the New York Tribune.]

* * * * But it is not necessary to dwell upon this subject, or to produce testimonials of the capacity of the engine for this important domestic use, as this capacity will be more abundantly demonstrated by what it has accomplished in raising water for the supply of locomotives at railroad stations. The first engine applied to pumping water at a railroad station was erected at Waltham, on the Fitchburgh Railroad, in Massachusetts. This engine was put in operation in October, 1858. The water at this station is drawn from the river through a three-inch iron pipe, 500 feet in length, to a hight of about 21 feet, and is then forced up about 20 feet over the top of the tank. After eight months' use the Superintendent reported that it had proved perfectly successful; that it was readily worked by an ordinary laborer, required no more time or attention than a common coal stove, and burned comparatively little fuel.

* * * * * * * * * * * *

A result more important in view of the number of engines employed is exhibited on the New York Central Railroad, on the line of which there are now some 20 of these engines in daily use. Mr. Chauncey Vibbard, the Superintendent of that road, reports, over his official signature, after several months' experience with a number of these engines, that they perform an "incredible" amount of labor "for the small quantity of fuel consumed." One of them, he says, for 96-100 of a cent per hour, does the work formerly done by four men, at an expense of $25 each per month. Another of the same size, at the Savannah station, at an expense of eleven cents a day,

does the work of five men, who receive $125 a month. Other engines have been erected on several other railroads for pumping purposes with the same favorable result.

The second application of the caloric engine was to the driving of printing presses. The first trial of the engine for this purpose was made in the office of *The Hartford Times*—the first that was entirely successful was made in the office of T. W. Strong, No. 98 Nassau street, in this city. The next engine built was set up in the office of Messrs. French & Wheat, No. 18 Ann street, and the third in the office of Mr. C. C. Shelley, a job printer in Barclay street. The result has been the adoption of the engine in numerous job offices in every part of the country; but the entire sufficiency of this engine for all printing purposes, however, may be better illustrated by its use in printing newspapers than in any other description of work. *A newspaper cannot wait.* A machine to strike it off must be *economical, easily managed, and not liable to get out of order.* There are now no less than *forty daily* papers in the United States printed by Ericsson's engines, most of them of 24-inch, but three or four of 12 and 18-inch cylinders. It is emphatically the printer's engine. One of the most recent testimonials to its value is from the proprietor of *The Savannah Evening Express*, who states that he regards it as the most perfect and economical motive power ever applied.

CORRESPONDENCE.

The following letters, received from parties using the Caloric Engine, speak for themselves :

MURRAY HILL, *Nov.* 22*d*, 1858.

JNO. B. KITCHING, Esq.

DEAR SIR :—As a resident of Murray Hill, and a property holder there, I take great pleasure in thanking you for the introduction of Ericsson's Caloric Engine. It removes the only drawback upon the value of the property and the convenience of residence in this neighborhood. My house is on the very summit, at the corner of Thirty-eighth street and Madison avenue, and the space through which water must be raised to the tank is seventy-two feet. I had numerous household annoyances as long as I was obliged to have the water pumped—annoyances that I will not dwell upon, but of which all my neighbors must have had personal experience. All these, however, have been removed by the Caloric Engine, which has been in successful operation in my house, for pumping purposes, for seven or eight months. Before the engine was put up, I had the tank filled twice a week by hand power, and each pumping spoiled the better part of a day's work for an able-bodied man; with all this, I was sometimes obliged to call upon the house servants, or be short of the required supply. But the little Caloric Pumper does the work in about half-an-hour a day, at no expense of sinews, and with no grumbling or hard looks, while I am sure to have no lack of water. It requires quite as little attention as your assurance led me to expect, and the amount of fuel required to run it is not worth mentioning. I look upon the Caloric Engine as a matter of prime necessity for housekeepers who have any pumping to do; and if I can at any time say or do anything that will communicate the result

of my experience to the public, or particularly to those who are suffering the same annoyance for want of water I did before getting your engine, I shall be glad to do so—and again thanking you for its introduction, I am, dear sir,

Yours, very respectfully,

JOHN ANDERSON.

WASHINGTON HEIGHTS, *February* 3, 1859.

JOHN B. KITCHING, Esq.

DEAR SIR:—I take pleasure in stating that the Caloric Engine, furnished by you for my house at Washington Heights, gives entire satisfaction; and I would recommend to every one having occasion for motive power, to call and examine those in use at 164 Duane Street, feeling confident that the thing itself will convince the most skeptical of its utility.

Yours, very truly,

GEO. LEWIS, JR.

NEW YORK, *March* 14, 1859.

J. B. KITCHING, Esq.

DEAR SIR:—The small-sized Caloric Engine I purchased of you several months since for pumping water at my house at Tarrytown, I am pleased to inform you, works to my entire satisfaction, and has proved itself to be all that you represented, and can highly recommend it to any of my friends for such purposes.

Yours, very truly,

WM. H. TOWNSEND, 17 & 19 *Warren Street.*

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54 & 56 EXCHANGE PLACE,
NEW YORK, *June 24th*, 1859.

J. B. KITCHING, Esq.

DEAR SIR:—The Caloric Engine which I recently purchased from you, for the purpose of supplying the tank in the attic of my house with water, I find very well adapted to the accomplishment of that object.

I have no difficulty in raising with it from the well to the tank, a height of about 70 feet, from 175 to 200 gallons of water per hour, and shall, without hesitation, recommend it to any of my friends who desire to obtain a power to perform a similar work.

Yours truly,

JOHN T. TERRY.

NEW YORK, *November* 17, 1859.

JOHN B. KITCHING, Esq.

DEAR SIR:—The Ericsson Caloric Engine supplied by you to my plumber, works to my entire satisfaction, and I think from my experience with it, that it is far superior to the old pump. The engine is so simple, that I find a boy ten years old can manage it with perfect ease. The quantity of fuel to keep it running is so small, that I consider it preferable to any other mode for throwing up water, or any other use they can be applied to.

Truly yours,

JOSEPH STUART.

STATEN ISLAND, *November* 14, 1859.

JOHN B. KITCHING, Esq.

DEAR SIR:—It affords me much pleasure to be able to bear witness to the utility of the Caloric Engine and Pump you erected in my house. It is everything I could wish; causing little or no trouble in attendance. The fuel it consumes is, as you stated, very trifling. It saves much manual labor, and consequently we are clear of much annoyance and grumbling from servants. I have little doubt of their general use when known.

Very truly yours,

SAMUEL WANN.

NEW YORK JUVENILE ASYLUM,
September, 1858.

JOHN B. KITCHING, Esq.

DEAR SIR:—Your note, requesting me to inquire more particularly into the amount of coal consumed by the engine used in the

New York Juvenile Asylum, has been received, and the matter thoroughly examined. I find that twenty pounds of coal will run the engine fourteen hours, and give an average of forty-five revolutions per minute To produce this highly satisfactory result, great care has been taken not to put on sufficient coal at once to damp the fire. To effect this we have fed it as often as once an hour. In my former statement, the amount of coal used was roughly estimated, and hardly ordinary care taken to reduce its consumption, as the engine was principally tended by a boy.

Very truly yours,

JOHN RUSS, M. D., *Superintendent.*

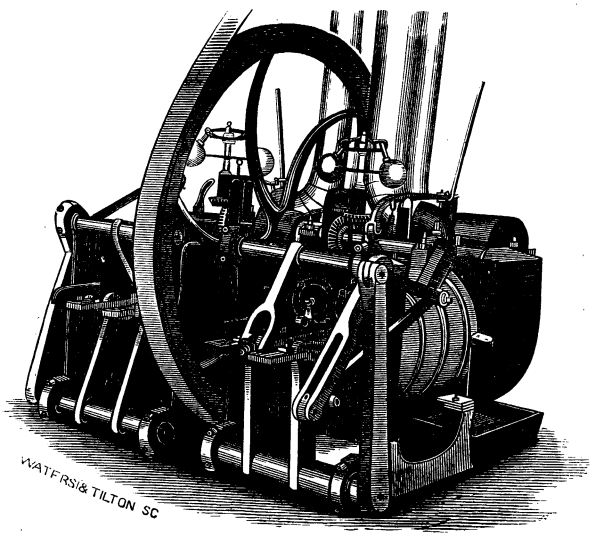
P. S.—The results arrived at as above were from a trial of four days.

N. Y. JUVENILE ASYLUM, WASHINGTON HEIGHTS, 175th STREET, *Jan.* 29, 1859.

JOHN B. KITCHING, Esq.

DEAR SIR:—The twelve-inch Caloric Engine at the New York Juvenile Asylvm has been in use for nine months, and has done exceedingly well—having worked from fifteen to twenty hours per day, where the pumping is of the most trying kind. It draws the water a distance of, say twenty feet, and forces up an elevation of about sixty feet, and along about four hundred feet, and supplies all the water for the steam boilers, heating, washing, bathing, etc., for the asylum; and previous to which we had found the power of a horse unable to do the work, unless aided by man-power.

It fills a place as a motive power, that no other invention occupies, and must be of incalculable value under circumstances where it is inexpedient to have a steam boiler, engine, or engineer—all of which are, with this, avoided. It is *the* thing for railroad stations, public institutions, or private houses—in fact, in any place where *power* is required, from the strength of a man to that of two or three horses. It will do for inside or outside work; the heat can be thrown into the room, or adjoining room in winter, and thus far run without expense, as the heat of the coal is saved, and does the work better than any coal-stove, as it gives more life to the atmospbere of the room from its motion.



DOUBLE TWENTY-FOUR INCH CALORIC ENGINE.

Appearances indicate that this new motive power (Air,) is only surpassed by steam; and where *this* will supply sufficient power in the place of steam, it is far superior—inasmuch as there is no danger from bursting or collapse—in fact, there is no more danger from fire than from a parlor stove.

It promises to be one of the greatest labor-saving machines in existence, and is performing the work, as a motive power, that was long expected to be obtained from electrical machines, but which, from their great expense, as well as imperfect working, have thus far baffled all attempts to bring them into practical use.

One great advantage is, that it almost attends to itself, as a fire can be made in it the same as in a stove, and left to work the engine —and when the fire goes out, the engine will stop of itself, and no harm be done;—and while running, there is no danger, such as arises from the use of steam.

If parties wishing *motive power* will examine for themselves before pronouncing an opinion on what they have never seen (or can, from the nature of the case, know much of its actual working power and capacity,) we think that they will coincide with us that it is the *ne plus ultra* of new inventions.

S. D. BROOKS, *Superintendent.*

NEW YORK, *Feb.* 8, 1859.

J. B. KITCHING, Esq.

DEAR SIR:—We take great pleasure in having it in our power to speak in the most unqualified praise of the performance of the twelve-inch Caloric Engine we bought of you some months since.

We confess, at the time of making the purchase, we had many doubts of its practical usefulness; but from the first, it has done its work with such perfect facility, economy and reliability, that, were it out of our power to procure another, we would not part with it for many times its cost.

Very truly yours,

TIFFANY & CO.

NEW YORK, *Feb.* 11*th*, 1859.

Having used one of Mr. Kitching's small engines, for pumping water, we have pleasure in concurring with Messrs. Tiffany & Co. in what they say of its merits.

DUNCAN, SHERMAN & CO.

NEW YORK, *Feb.* 11*th*, 1859.

JNO. B. KITCHING, Esq.

DEAR SIR:—In reply to your note, asking me how I am satisfied with the twelve inch Caloric Engine, purchased of you about seven months ago, I would say that I doubted, at first, the capability of the engine to do my work; but my doubts have long since been removed by the ease and reliability with which it drives my machinery. Its economy is very great—not having cost me anything for repairs, and but a few cents daily for fuel. The attendance required is very little indeed, and its perfect safety is an additional recommendation.

Yours, &c.,

ALEXANDER SHAW.

NEW YORK, *Feb.* 16*th*, 1859.

J. B. KITCHING, Esq.

DEAR SIR:—Presuming that you will be pleased to hear my report upon the working of the twelve-inch Caloric Engine that you caused to be put up for me, at "High Cottage," Westchester Co. last fall, I now take pleasure in saying to you that it works to a charm, to my entire satisfaction—accomplishing as much labor and at as small a cost of fuel as I had been led by you and others to anticipate; and cordially recommend the principle to all those requiring such services as these machines are calculated to perform.

Very respectfully,

R. W. MONTGOMERY.

THE AMERICAN EXCHANGE BANK,
NEW YORK, *Feb.* 20, 1859.

J. B. KITCHING, Esq.

DEAR SIR :—The Caloric Engine furnished by you, for pumping water into the reservoir in the upper story of our bank building, has been in use for some months, and I am pleased to express my satisfaction with its operation. It fulfills all that you promised for it, and is simple and economical in its working.

Very respectfully,

GEO. S. COE, *Vice President.*

The above is true of the one placed, at an earlier period, in the Metropolitan Bank.

J. E. WILLIAMS, *President.*

Feb. 21*st*, 1859.

NEW YORK, *Feb.* 22*d*, 1859.

J. B. KITCHING, Esq.

DEAR SIR :—Previous to the introduction of your engine into the Bank of New York, the labor of a man was required a considerable portion of two days every week, with the force pump to fill the tank for the supply of the upper stories of our building with water. This service is now performed by the Caloric Engine, with the expense of less than a peck of coal weekly, and very satisfactorily.

A. P. HALSEY, *President Bank of New York.*

SUPERINTENDENT'S OFFICE, NORTH-EASTERN R. R. Co.
CHARLESTOWN, *September 6th*, 1860.

Mr. JOHN B. KITCHING.

DEAR SIR :—Will you be good enough to send me, per Adam's Express, a new spiral spring, for the upper valve in the piston of the Caloric Engine, bought of you for this Company, last winter?

It may please you to know that the Engine has, up to this time, performed quite satisfactorily.

Yours, very respectfully,

S. S. SOLOMONS, *Eng. and Supt.*

WASHINGTON STREET,
November 21, 1859.

JOHN B. KITCHING, Esq.

DEAR SIR:—I have great pleasure in certifying to the excellency of the Ericsson Caloric Engine which I purchased of you several months since, for pumping water at my house in Yonkers. Formerly it required two and a half days of manual labor to fill my tank of 4,000 gallons, but with your engine, I now fill it in two and a quarter hours. The cost of fuel is a mere trifle.

Yours truly,
C. H. LILIENTHAL.

OFFICE OF THE GOFFE PATENT KNITTING MACHINE AGENCY,
514 *Broadway*, *Nov.* 13, 1859.

JOHN B. KITCHING, Esq.

DEAR SIR:—I take pleasure in having it in my power to speak in the most unqualified praise, of the performance of the 12-inch Caloric Engine, that I bought of you some three months since, to run a set of four power Knitting Machines in my office.

At the time I ordered this engine, I had many doubts of its capacity of doing the work that I should require of it, and should have purchased a small steam engine; but the fact of no additional rate of insurance being charged by our underwriters, induced me to try your engine, and thus far, I am more than satisfied with my purchase—it having in many ways, far succeeded my most sanguine expectations. The consumption of coal is nominal, and warms the rooms at the same time.

I cheerfully accord to you the privilege of referring to me, and extend to all, an invitation to call and see the engine work, at all times.

Respectfully,
H. C. LEE, *Agt.*

NEW YORK, *January* 11*th*, 1859.

MR. KITCHING.

DEAR SIR:—I have had in use one of your Caloric Engines (an eighteen inch) for four months, and the satisfaction it has given induces me to send you the following as a matter of justice, and for the information of those who may be in doubt.

The engine drives two presses—a Hoe's Cylinder and a Gordon Alligator (large size)—at the rate of from ten to twelve thousand impressions a-day each press, with perfect ease, and at an expense of from twenty to twenty-five cents—coal, wood, oil, &c., included—for each day. It requires no engineering attendance, one of my smallest boys seeing to it. It is perfectly safe, does not raise the rate of insurance, and I think I can safely assert, will pay for itself in one year.

What makes me feel more satisfied in regard to its success, is my having purchased it in defiance of the repeated dissuasions of those who pretended to know in regard to its merit, and who prophesied nothing but failure. But my experience thus far has proven that the only failure has been in their predictions.

Yours, truly,

C. C. SHELLY, 68 *Barclay Street.*

NEW YORK, *September* 18*th*, 1860.

Mr. KITCHING.

DEAR SIR:—It is now two years since I first began to employ one of your Caloric Engines. It has succeeded admirably in answering my expectations. I work it daily ten hours, seldom giving it chance to rest, and it performs its duty thoroughly, accomplishing all for me that steam could, without danger and without extra premium for insurance. To those who are disposed to cavil at its efficiency, I would say, that in every case where it has not given satisfaction, neglect or mismanagement on the part of the user will be discovered.

Yours truly,

CHARLES C. SHELLY,
68 *Barclay Street.*

PROVIDENCE, *Feb.* 4*th*, 1859.

Mr. J. B. KITCHING.

DEAR SIR:—Your eighteen-inch Caloric Engine, which I have had for past two months, gives me entire satisfaction thus far, and I am

very much pleased with it. It propels my work well, and no doubt will continue so to do.

I can turn the roaster with 125 pounds of coffee, and propel the mill which you are aware of the power required.

Yours, &c.,

GEO. W. SLEEPER.

NEW YORK, *June 27th*, 1858.

Mr. J. B. KITCHING.

SIR:—The eighteen-inch Caloric Engine, lately purchased of you, I think I have fairly tested, and it has exceeded my utmost expectations. I was fearful at first of its not having sufficient power to carry one of Hoe's double medium cylinder presses, (for which it was purchased,) but find that it works to a charm, and I think, would carry two of them with ease. There is no fear of a "blow-up," no need of an engineer, as a boy can tend it, and as for expense in coal, it does not require any more than would keep an ordinary stove. You are at perfect liberty to make use of this note, as testimony of the successful working of one of your engines, as applied to the printing business.

Yours, etc.,

W. H. HAGAR, *Job Printer*, 56 *Gold Street, New York.*

NEW YORK CORN EXCHANGE BAG MANUFACTORY,
123, 125 & 127 *Broad Street, June 27th*, 1859.

J. B. KITCHING, Esq.

DEAR SIR:—That 18-inch Caloric Engine you recently put up for us works very satisfactorily, and we take pleasure and most cheerfully add our testimony in its favor, and consider it one of the greatest improvements of the age. It has now been running about four weeks, driving one of Hoe's medium cylinder presses, making about 1,200 impressions per hour, and only consuming about fifteen cents' worth of coal per day.

If these facts are of any service to you, we most cheerfully give them.

Yours, respectfully,

B. E. CLARK & CO.

SUPERINTENDENT AND ENGINEER'S OFFICE,
FITCHBURG RAILROAD, BOSTON, *July 2d*, 1859.

J. B. KITCHING, Esq.

DEAR SIR:—In answer to your inquiries respecting the Caloric Engines we have in use on this road for pumping water, I am most happy to say, that they have proved perfectly successful. They are readily worked by any ordinary laborer, and do not require much more time or attention than a common coal stove. They are entirely safe, and burn but comparatively little fuel.

Our Engine at Waltham has now been in operation since October 1st, 1858. The water at this station is drawn from the river through a three-inch iron pipe, 500 feet in length, to a height of about 21 feet, and is then forced up, about 20 feet over the top of the tank. The saving in fuel at this station is over eighty per cent.

At Groton Junction, we use about 30,000 gallons of water per day, and, in pumping this quantity of water, use less than a hundred pounds of coal.

Respectfully, yours,

W. B. STEARNS, *Sup't.*

NEW YORK CENTRAL RAILROAD,
GENERAL SUPERINTENDENT'S OFFICE, *Albany, Dec.* 3, 1859,

J. B. KITCHING, Esq.

DEAR SIR:—I am at last prepared to give you my views in regard to the Caloric Engines. I should have done so at an earlier day, but a desire to arrive at practical results must be my apology.

This Company have now in use at water stations, five of the eighteen-inch Caloric Engines, which have been for several months working pumps for raising water for the supply of Locomotive Engines. Thus far, they have proved entirely satisfactory, and fully meet our expectations, and I see no reason why they should not continue to do so. The great amount of labor performed for the small quantity of fuel consumed, is incredible.

The one at Jordan Station performs the labor of four men, (at a cost of $25 00 each, per month,) at an expense of 96-100 of one cent per hour, to raise 2,260 gallons of water a distance of 27 feet, the

suction being nine, and the discharge pipe eighteen feet, the coal costing $2 75 per ton. One of the same size, at Savannah Station, does the labor of five men, at a cost of about eleven cents per day, making a saving of over $120 per month. No additional help is required to attend them, the station agent or switchmen do this in connection with their other duties.

We have decided to use the Engines at all Stations where we are compelled to supply Locomotives by pumping. I inclose herewith an order for ten, in addition to the number already in use.

Yours, truly,

C. VIBBARD, *Gen'l Sup't.*

NEW YORK CENTRAL RAILROAD,
GENERAL SUPERINTENDENT'S OFFICE, ALBANY,
April 7th, 1860.

JNO. B. KITCHING, Esq., New York:

MY DEAR SIR:—You recollect I mentioned to you some time since, that we were paying one dollar per day for pumping water, for supplying locomotives at our engine-house at Green Island, opposite the city of Troy, and that I purposed putting an 18-inch Caloric Engine there, in order to reduce the expense, which I accordingly did.

During the month of February, an accurate account of fuel, oil, &c., was kept, and the entire cost was only one dollar and eighty cents for the month.

The quantity of water used at the Station is about 6,000 gallons daily.

Yours, truly,

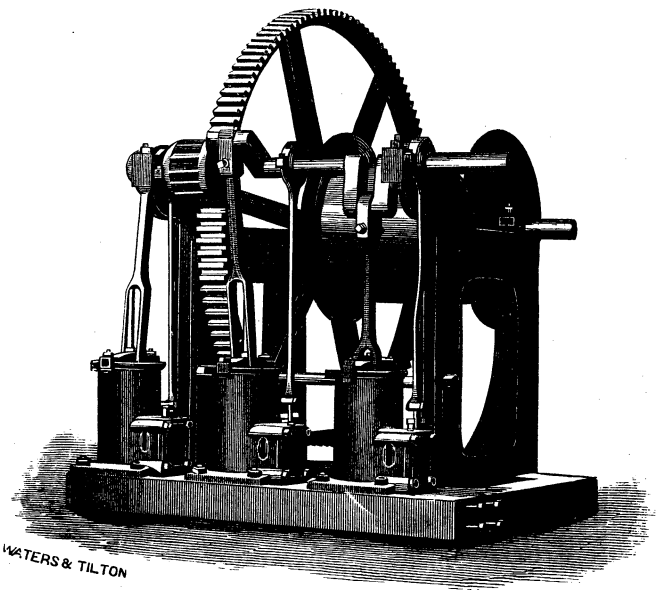
C. VIBBARD, *General Superintendent.*

☞ *The New York Central Road has sixteen of these Engines, already, at their various Water Stations.*

GAZETTE AND COURIER OFFICE,
NORTHAMPTON, MASS., *Nov. 18th*, '59.

J. B. KITCHING, Esq.

DEAR SIR:—In reply to your note of inquiry, respecting the working of our Caloric Engine, we are happy to state that it gives



ERICSSON'S AIR HOISTER.

us good satisfaction. It drives our double medium Adams press with the greatest ease, and there is surplus power enough to run another of the same size. We are satisfied that but little fuel is necessary; from casual estimates, we think that 17 cents' worth of Lehigh coal (costing here $7.50 per ton) would be sufficient to run the engine ten hours a day. It requires no extra attendance, and does not raise the rate of insurance. Besides these advantages, which are sufficient to bring these engines into general use, there is that of heating the room in cold weather, from the "exhaust" or escape heat, which, however, can be carried off in summer. We have heretofore used steam power, and still have our old engine and boiler on hand, but would not be willing to return to its use, even if the change in machines could be made without expense. For printing offices and mechanical establishments, where a limited amount of power is required, these engines are invaluable, and will rapidly take the place of steam.

We have had many visitors to see the novelty, and many inquiries from distant parts of the country relative to the Caloric.

Yours, truly,

TRUMBULL & GERE.

WASHINGTON, D. C., *Nov. 14th*, 1859.

J. B. KITCHING, Esq.

DEAR SIR:—It may be a matter of some interest to you, to know that the 18-inch Caloric Engine recently placed at the New-London (Conn.) Light House, for the purpose of condensing air to blow my air whistle, or trumpet, designed as a fog alarm, works admirably, and at an expense not exceeding twenty cents for twenty-four hours' labor; thus affording a motor probably equal to two horse power at an expense of less than one cent an hour, and so simple, withal, that the Light House Keeper, or his wife, are fully competent to its management.

A Committee of scientific gentlemen were sent there to inspect the operatiom of said apparatus, Prof. Henry, of the Smithsonian Institute, being its chairman, and their report will be made at the

first meeting of the Light House Board, when, I think, the Caloric Engine will receive some attention.

Very respectfully,

C. L. DABOLL.

NEW YORK, *January 26th*, 1859.

J. B. KITCHING, Esq.,

Agent for Ericsson's Caloric Engine.

DEAR SIR :—Last spring, I purchased from you one of the twenty-four inch cylinder engines (the largest size you then had) to drive my three small presses, at 98 Nassau street, which you guaranteed the engine to do. Finding it did the work stipulated with great ease, I was induced to bring my Adams' press from Ann street, where we have steam power, and put that also upon the Caloric. This too was driven so handsomely, that I determined to remove my large *Yankee Notions* press, also on the same premises, and make the little Caloric print the *Yankee Notions*, which it would do by throwing off the other, although at the time you remonstrated against it, saying "the engine could not drive it." However, I proved it could do more than you claimed for it, and have had the great satisfaction of doing all my work with this engine ever since; yet I have known that the engine was overtaxed, as no engine ought to be. I feel pleased to verify your assurances to me as to the economy in fuel, having run the engine upon one bushel of coal per day. The porter of our store has been the engineer. Having understood that you have some engines nearly finished, of considerable more power than the one I have, you will please consider this as an order for one of them, and I shall be glad to learn at what time you can probably furnish it.

Yours, &c.,

THOS. W. STRONG, 98 *Nassau Street.*

BALTIMORE, *Feb. 5th*, 1859.

J. B. KITCHING, Esq.

DEAR SIR :—As we purchased the first Ericsson Caloric Engine (twelve-inch cylinder,) and also the first twenty-four inch cylinder

that was built, and, consequently, have had a longer experience with them than any one else, we think it but justice to give you the result thereof.

The twelve-inch was purchased twelve months since, and is used at our chemical works, for pumping. It consumes eight cents' worth of soft anthracite coal per day of ten hours (coal $5 50 per ton of 2,240 pounds delivered), and raises water equivalent to 1,000 gallons per hour 100 feet high.

The twenty-four inch consumes 18 cents' worth of the same kind of coal per day, and with it we drive the machinery for making the double and treble wall Ice Pitchers, Butter Coolers, &c., under the patent issued to Mr. Stimpson. The best idea of its power may be had, by stating that our rollers (used for rolling out the metal from the ingots, half inch thick, into sheets, one twenty-fourth thick,) were driven by a six-horse steam engine. The engineer asked, when we were about to remove them: "Do you expect to drive them with your Caloric, when it takes all our steam to roll through the long sheets?" We replied: "We are going to try;" and we had the satisfaction of seeing her "blow off" whilst the sheets were going through. Her speed lessened before the sheets got entirely through, but she recovered herself before they were ready to pass through again.

The twenty-four-inch was purchased in June, and neither of them has cost us one cent for repairs. We see no reason why they will not be as durable in their working parts as steam engines. By careful firing, and proper attention to regulating the draught, one-third less fuel will do the same work, and heat a large room without any other fire. We have no water rent to pay for, no extra insurance, and no freezing up of pipes. But all these advantages, great as they are, we count as nothing, compared to the personal satisfaction derived from the consciousness that we are in no danger from explosions; and for these reasons we shall be happy to see them brought into general use. We feel a just pride in the fact that we were the first to practically put them into operation.

We are, dear sir, very truly yours,

STIMPSON & NEILSON.

NEW YORK, *Feb.* 25*th*, 1859.

Mr. J. B. KITCHING.

DEAR SIR:—We have been running for the last five weeks one of the twenty-four inch cylinder Caloric Engines, Ericsson's Patent. During that time it has worked to our entire satisfaction. We have not been obliged to stop an hour for repairs, or any other cause. As near as we can judge, without actual weight of the coal, we burn eighty pounds to the day of ten hours, during which time we have run off one hundred tokens of press-work on two presses. We employ a boy of about sixteen years to take charge of the engine, which he does, besides attending to other duties, about one-fourth of his time only being required for the engine. Any further items which you may wish to have with regard to the running of the engine, we shall be pleased to furnish you with at any future time.

Respectfully, yours,

FRENCH & WHEAT, *Printers*, 18 *Ann Street.*

CINCINNATI, *March* 2, 1859.

Mr. J. B. KITCHING.

* * * * * * * *

The engine does better than even my most sanguine expectations. You did not tell me all. It does not require the amount of fuel you represented. To run my engine, which propels a double cylinder Hoe press, for four hours, (astonishing as it is), requires but *one peck of gas coke*, costing six cents per bushel. Three thousand impressions of the *Daily Press* are thrown off per hour. The engine would drive at least two other presses of equal size and capacity.

Thousands have seen the engine, and all greatly wonder at it. I will write to you in a few days. C. F. HALL.

GRAIN ELEVATORS AT RAILROAD STATIONS.

EASTERN DIVISION PENNSYLVANIA RAILROAD,
West Philadelphia, April 11, 1860.

Two of the Caloric Engines purchased of you by the Pennsylvania Railroad Company have been in operation since about the first of the

present year. They have been employed in the Company's warehouses at Parkersburg and Bird in Hand stations, elevating grain from the cellar to the second story, and distributing it into bins. The grain has been raised about 25 feet, and conveyed from 65 to 85 feet; 230 bushels of oats and about 200 bushels of wheat or corn have been elevated and distributed in one hour, consuming at the rate of about one bushel of coal in eight hours. Their performance has been entirely satisfactory, and has proven them fully adapted to the purpose to which they are applied.

We hope you will very soon be able to furnish the remainder of those ordered.

Yours, &c.,

J. C. SHARPLESS, *Assistant Resident Engineer.*

READING, Aug. 27, 1859.

GENTS:—Having used the Caloric Engine you set up for me in my Cabinet Manufactory some two months since, I am happy to say that it fully answers my expectations; and I judge from the two months' experience I have had in its use that it is all that you claim for it. It drives my machines better than I expected; I can drive any two of them at a time, such as cutting off rough boards, splitting up and squaring off stuff, gig-sawing, grooving, planing with a side jointer, &c.; also, can split through four or five inches of pine boards to good advantage.

Yours, respectfully,

S. A. PARKER.

NEW YORK, *March 18th*, 1859.

JOHN B. KITCHING, Esq.

DEAR SIR:—I have to report to you that I have had in constant operation, by day and night, for the last three weeks, two twenty-four inch Caloric Engines, which have been employed in driving the drilling machinery employed in drilling the keel of the iron ship I am now building, and that the engines have been running constantly (only resting on Sundays,) and that they are in the most perfect

order, showing no marks of injurious wear, but, on the contrary, an improvement in efficiency from increased smoothness of working.

Yours, very truly,

C. H. DELEMATER.

BOSTON, *June 12th*, 1859.

MASS. CALORIC ENGINE CO., S. GROTON, MASS.

GENTLEMEN:—It affords me pleasure to inform you of the entire success of the Caloric Engine, (Ericsson's Patent,) which I purchased of you, to use in my Morocco Tannery, at Charlestown.

I am using the power of the engine to drive a Morocco Polishing Machine, and a Mill for Fulling Goat Skins. It performs all the labor required of it in a most satisfactory and economical manner, enabling me to get off a much larger amount of work than heretofore, and at much less expense. The entire absence of danger from the use of the Caloric Engine by fire, to the building, or by explosion, to lives, as well as its great economy, must recommend it to general use in factories, where small power is required.

The Fulling Mill built by you for my use, also gives good satisfaction.

Yours, &c.,

ASHBEL WAITE.

BOSTON, *April* 7, 1860.

DEAR SIR:—It affords me pleasure to be able to add my testimony in favor of the Caloric Engine, which I purchased of you.

This Engine (double 24) was placed in my bakery at Washington, Mass., in December last, and has since that time been running my two sets of cracker machinery, in such a manner as to convince me, beyond a doubt, that this motor is as certain in its operation as steam, or any other agent of which I have any knowledge. In point of economy, the consumption of fuel by it is very much less than would be required by a steam engine of the same capacity; while the time required in managing it is comparatively nothing, it being as safe, so far as bursting is concerned, as a common cook stove.

Previous to purchasing, I called the attention of my underwriters to it, that I might know what would be the effect of setting this engine on my insurance, and was pleased to learn from them that it would not increase the risk in my buildings.

I am now satisfied that, owing to its perfect safety, its economy of fuel, together with the small amount of labor required in its management, that it is destined to take the place of other powers for driving light machinery that will not afford an engineer.

Yours, truly,

T. D. BOND, *No.* 12 *Canal St., Boston.*

NEW YORK, *July 8th*, 1859.

JOHN B. KITCHING, Esq.

DEAR SIR:—Having used one of your 24-inch "Caloric Engines" for the past six months, we can fully recommend them to any one in want of safe and economical motive power. We are now doing our work as well as when we used steam power, at less than half the expense.

Respectfully, yours,

ANGELL & CO.

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16 MAIDEN LANE,
NEW YORK, *July 11th*, 1859.

DEAR SIR:- We are in receipt of your inquiry respecting the 24-inch Caloric Engine purchased from you last April. You are aware that our business is manufacturing silver plated ware, and consequently we have used the engine for spinning, turning, buffing, burnishing and soldering metals—all these different operations going on at the same time. We cheerfully state that it has performed all the work guaranteed for its size; and would add that we have been surprised at its capacity, considering we have run it on a cost of ten cents or thereabouts, for fuel, per day, and requiring the attendance of only an apprentice for oiling and firing up. We fully recommend it as the cheapest and safest motive power in use.

We are, dear sir,

Yours, respectfully,

CHARTERS & BRO.

The following letter from Messrs. French & Wheat, gives the result of five months' additional trial of the engine, since the receipt of their letter of Feb. 25.

18 ANN STREET, NEW YORK, *July* 18, 1859.

Mr. JOHN B. KITCHING.

DEAR SIR :—After over six months' trial of your 24-inch Caloric Engine, we take great pleasure in informing you that it is a complete success. We have run it regularly ten hours per day, and often all night, and that without losing an hour's time or spending a dollar for repairs, and the engine is now, to all appearances, as good as new. It is perfectly tight in every joint, although it has not been repacked since it was put up. It appears to us to grow *better* instead of wearing out, as many have prophesied, for it takes less fuel to do the same work than when first put in operation.

We now run four presses with it, one of which is a 31x50 drum cylinder (Hoe's,) and always have an abundance of power.

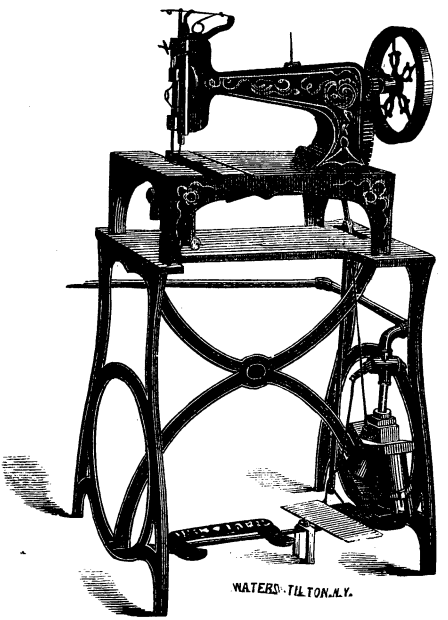
Yours, very respectfully

FRENCH & WHEAT, *Job Printers*, 18 *Ann St.*

EAGLE AGRICULTURAL WAREHOUSE,
34 & 36 MERCHANTS' ROW, BOSTON, *July* 12, 1859.

MASS. CALORIC ENGINE CO.

GENTS :—The Ericsson's Caloric Engine and Hoisting Machine put up in our warehouse by you, performs so admirably, so entirely to our satisfaction, that we feel ourselves constrained to recommend the same to all persons who have hoisting to do. The engine consumes less than one hundred pounds of coal, and but three cents' worth of lard oil per day. Our porter acts as engineer, while discharging his other various duties. The absence of danger to lives, and the fact that no additional rate of insurance is charged by our underwriters, is an additional recommendation.



SEWING MACHINE WITH ERICSSON'S POWER ATTACHMENT.

We cheerfully accord to you the privilege you request, of referring to us, parties who may wish to hoist by power—and extend to all such, a cordial invitation to call and see the engine at work.

NOURSE & CO.

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181 Broadway, New York,
July 19th, 1859.

Caloric Engine Agency.

Dear Sir:—In reply to your inquiry, as to whether the 24-inch Caloric Engine, purchased from you, is satisfactory, we reply, that it is so in every respect. It drove all the machinery in our shop at the time of purchase, and finding that it would do more, we have added considerable work, and it now drives the following tools, viz: 7 lathes, 1 three feet plainer, 1 horizontal plainer, 1 drilling machine and grindstone, at the cost of less than twenty-five cents per day. And this, it does upon less coal than would be required to warm our shop in the winter time. The engine requires so little attention, that the other duties of one of our boys is scarcely interfered with, by his attention to the engine. We assure you we take great pleasure in bearing our testimony to the many advantages of the Caloric Engine, and it gives us the greatest satisfaction to do so, because of the *croakings* of some of our friends, who cautioned us against buying what they characterized as a humbug.

Yours, respectfully,

JEFFERYS BROTHERS.

P. S.—We think we could do more work with your engine, if we had a greater height of chimney, as our stack is very short, as you know we are at the top of the building, fifth floor.

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2 William St., New York, *Nov. 12th*, 1859.

Dear Sir:—I have now used the engine purchased of you on the 8th ult., one month; it has been run steadily all that time, and to my entire satisfaction; in fact, we have too much power for our

use, when the fire is properly attended to. There is a tendency on the part of my workmen to think that since the engine works without water or steam, she should run without fire, also, and when the engine has seemed to fail in what we expect from it, I have always traced it to neglect of firing. I think the engine a complete success, and to any one requiring the amount of power I use, it is the most economical (in every sense of the word,) motive power that can be obtained. I formerly run my cylinder press with hand power. My poor Irishman used often to "brag" that he turned off 20 tokens per day, but the second day after the engine was put up, I worked off 22 tokens between 1 and 6 o'clock, P. M., and was quite certain of the same power the next day, but in my crank-man I was generally disappointed, as he was apt to get stiff from a heavy day's work. I had hoped to call on you before this, but I have been so busy I could not. I hope to be in your neighborhood soon and shall call on you.

Very truly, yours,

L. HORATIO BIGELOW.

WASHINGTON HEIGHTS, *September* 17, 1860.

JOHN B. KITCHING, Esq.

DEAR SIR:—I have had in use one of your 8-inch Caloric Engines for the past two years, and during that time it has given entire satisfaction.

It forces an inch stream to the top of my house (38 feet,) with an ordinary gas burner, arranged as those in gas stores. It consumes twenty-five feet an hour, and makes sixty revolutions per minute. I much prefer gas to coal, for this reason. In twenty-five minutes after lighting, the engine will pump, and when once in motion it requires no further attention. I would recommend to *all* who require motive power, to purchase a Caloric Engine, feeling confident that it will give entire satisfaction.

Yours very truly,

GEO. LEWIS, JR.

AGRICULTURAL WAREHOUSE, 45 FULTON ST.,
NEW YORK, *Nov.* 9, 1859.

DEAR SIR:—Yours of the 4th is at hand, and in reply would say, we find the Caloric Engine to do all we expected of it, but its exact capacity we cannot state. We are driving three small machines—a Boring, Sawing, and Planing Machine. In our opinion its power is equal to a four-horse engine; it is simple, easily managed, and we have no difficulty in running it at a cost of one bushel coal per day, not exceeding 25 cents.

The price to us was $750, and for setting up with pulleys, &c., $50 additional.

Yours, respectfully,

TREDWELL & PELL.

MARLBORO', MASS., *April* 6, 1860.

GENTS:—With regard to the 24-inch Caloric Engine which you put into my Shoe Manufactory, I have to say that it drives, with ease, two rolling machines, one splitting and eight sewing machines, grindstone, &c., at the same time.

It consumes less than 100 pounds of coal per day, and as it warms the factory better than the same amount of coal would in common stoves, I consider I get my power (in cold weather at least,) for nothing.

Respectfully yours, S. G. FAY.

GRINDING QUARTZ.

PHILADELPHIA, *March* 27, 1860.

We have been using the double 24-inch Caloric Engine for six months, to run three mills and three mortars for grinding quartz, spar, and coloring materials, used in the manufacture of porcelain teeth; one rolling mill, four small lathes, and one grindstone, and take pleasure in saying that, so far, we are entirely satisfied with its operation. The consumption of fuel is 181 pounds of Anthracite coal per day of ten hours. (It must be understood that we do not work the Engine to its full capacity, the furnace doors being open

two-thirds of the time.) The person who attends it is not an engineer, and is engaged in other duties on the premises.

Respectfully,

JONES & WHITE, 528 *Arch Street*,
Manufacturers of Porcelain Teeth.

POLISHING COMBS.

PHILADELPHIA, *March* 26, 1860.

The 24-inch single Caloric Engine purchased from you, has been in constant use since its receipt on December 18, 1859. Its duty is to drive three buffs, 28-inch diameter, at a speed of 700 revolutions per minute, for polishing combs—one grindstone, one lathe, and one drill. The consumption of coal is 111 pounds per day of ten hours. The operation has been to my entire satisfaction. This is an outside estimate of fuel.

HENRY CARLISLE, Comb Manufacturer,
No. 44 *North Eighth Street*, *Phila.*

RUNNING MACHINERY.

PHILADELPHIA, *March* 27, 1860.

The Caloric Engine I bought of you some three months ago, and which I have been running ever since from 12 to 14 hours per day, to my great satisfaction, the fuel costing only 2½c. per hour, and by which I am running two lathes, one routing machine at 5,000 revolutions per minute, three 8-inch saws at 2,500, and one 14-inch saw at 2,000. Running as they do, at such a high speed, I should judge that the engine has the capacity of full 3-horse power. My main shafting being 45 feet long.

Respectfully yours,

NELSON J. WEMMER, 205 *and* 207 *Pear Street.*

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15 STATE STREET, NEW YORK, *Nov.* 22*d*, 1859.

J. B. KITCHING, (*Caloric Engine Agency.*)

DEAR SIR:—After considerable experience, it gives me much pleasure to bear testimony in favor of the pair of 24 inch Caloric Engines and Hoister put into this warehouse by you.

Our platform in the State street hatchway worked directly by the engines, is where we lift our heaviest weights, and we readily hoist over 2000 lbs., at a speed of more than 40 feet per minute.

At our Bridge street hatch, where we have Capt. Ericsson's Cold Air hoister worked by the engines also, and the power applied to our common wheel, which we can run either way at great speed, say 70 or 80 feet per minute, with seven to ten hundred pounds. This is the greatest invention of the age, as with this simple attachment of Capt. Ericsson's Hoister, to our old hoisting gear, (and which we think must come into general use when it becomes known,) we have the advantage of working two falls with great speed, *i. e.*, when the load is up with one fall, the other is hooked on ready to go up as soon as the first is pulled in, and if not desirable to run the engine for every trifling package, the fall may be instantly disconnected and worked by hand. We consider this a great labor-saving machine. It costs only about 50 cents per day, and the labor of many men saved.

Hoping that Capt. E. and yourself may be abundantly rewarded for this very great benefit conferred upon the public,

I am very respectfully yours,

A. S. HUTCHINSON.

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26 Pearl St., New York, *Nov.* 25, 1859.

Jno. B. Kitching, Esq., *Ericsson's Caloric Engine Agency.*)

Dear Sir:—In reply to your note asking how we are pleased with the Ericsson Hoisting Engines, put into this and the two adjoining stores, (belonging to Mr. Mead,) we beg to say that they more than realize our expectations. As you are aware many of our goods are very heavy, such as Sugars, Molasses, &c., but even these we can send up at either hatchway with great speed. The rapidity, and safety with which we transfer goods from the extreme points in our warehouse, since we have had these hoisters, make our upper stories far more valuable, and we should not know how to get on at all in the old mode of hoisting by men. The expense of running the engines is so inconsiderable, compared with the work done, and time saved each day, that it is not worth mentioning.

If your friend, Capt. Ericsson, had never invented anything but these Hoisting Engines, and you had done nothing but aid in bringing them to public notice, you would both have large claims upon the gratitude of the community.

We sincerely hope you may be fully remunerated.

Very respectfully yours,

SACKETT, BELCHER & CO.

[From the Philadelphia Press, August 7, 1860.]

A GREAT LABOR-SAVING INVENTION FOR MERCANTILE HOUSES.

Those who are at all familiar with the vast amount of exhausting physical labor attending the hoisting and shipping of heavy packages of goods, will appreciate at a glance the invention we are about to notice. For the opportunity of examining it thoroughly in practical operation, we are indebted to the courtesy of Messrs. James, Kent, Santee & Co., well known and extensive Jobbing Merchants, Nos. 233, 239 and 241 North Third Street, who, by the way, have been the first to adopt this improvement in Philadelphia, though it will probably not be long before many others will also avail themselves of its advantages.

The improvement referred to is in the hoisting and shipping department. To perform this heretofore toilsome part, Messrs. J., K., S. & Co. have introduced into their basement a 24-inch cylinder Ericsson Patent Caloric Engine. This engine—which by experiment has been found to consume fuel not exceeding an average cost of thirty cents per day—works an air pump, forcing the cold air through an ordinary gas pipe into a reservoir beneath the pavement, about sixteen feet long and three and a half in diameter. The air in this reservoir is capable of being compressed to any degree of power required. From the reservoir there is a pipe leading to the fifth story, where it is attached to a most ingenious piece of machinery called an "air hoist." This latter is composed of three valves, similar to air pumps, arranged so that by opening the cock

in the pipe the compressed air, passing into the valves, propels a large cylinder, around which is wound a hoisting rope, carrying the crate, with almost any amount of weight, up and down the hatchways with the greatest ease, two hatchways in different parts of the store being thus propelled by the same power. The process itself is a most beautiful mechanical operation, and must be seen to be fully appreciated. In company with a half dozen others, amounting in the aggregate to a thousand pound weight, the writer walked upon the crate in the basement, and the instant the slight check was withdrawn we commenced ascending, at the rate of *two seconds* to a story, to the seventh floor above, where we stepped ashore, examined the aforesaid "air hoist" for a few minutes, and then descended, with a slightly increased velocity, to the ground floor. The guards against the possibility of accident are at once ingenious and thoroughly effective, and the whole operation actually renders what is ordinarily the most laborious task in conducting a heavy business a pleasure. It is, in fact, an economist of time, labor and expense. By *actual experiment* it is found that the same amount of hoisting which, under the most favorable circumstances by the old shaft and belting system, would require the work of six men an hour, is accomplished by this new arrangement in *fifty-seven seconds!* Then, in addition to this, the cumbrous tackle and machinery necessary for extensive hoisting, especially in different parts of the same building, under the old hand system, is effectually done away with.

The employment of an Ericsson Caloric, instead of a steam engine, is of course not a necessity, but Messrs. James, Kent, San..ee & Co., have wisely preferred it, from considerations of safety and convenience, as well as economy. No extra insurance is exacted on account of this, whereas for a steam engine there would be. Nor does the Ericsson Engine require an experienced engineer to attend it. The engine itself, cost $750; the whole, as arranged in this establishment, with complete apparatus, embracing two "air-hoists," having cost about $2,100. Of these two hoists we omitted to mention that one is for the delivery of goods, and the other for their distribution throughout the house.

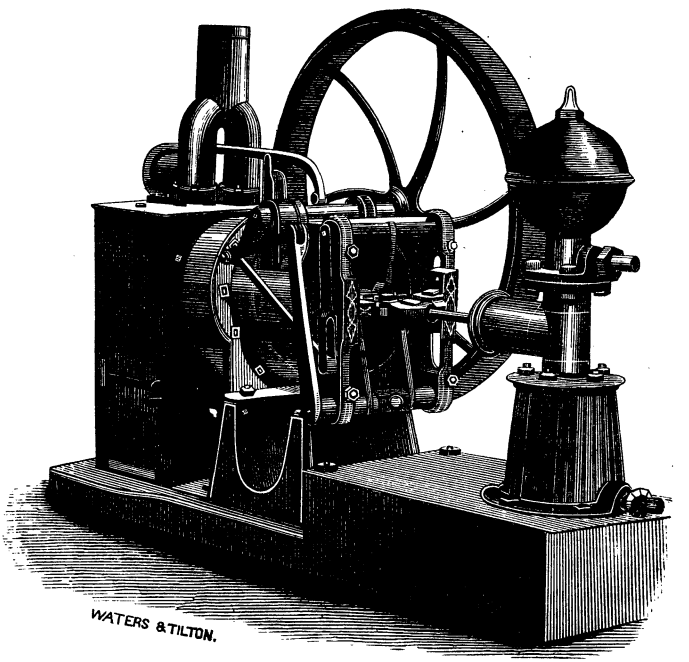
There is one peculiarity about this improvement which will, we

think, materially facilitate its speedy adoption by "live" business men, viz: the fact that a single engine and reservoir can be made available for the stores of an entire block, by simply extending pipes to the different buildings in which the "air-hoists" are located. The dispatch with which goods are shipped by this arrangement is itself a great point, rendering, as it does, the piling up of boxes on the pavement wholly unnecessary, from the fact that the second or two required to hoist them to the pavement is fully adequate to any capacity that could be employed to cart them away.

NEW YORK, *Nov. 28th*, 1859.

JNO. B. KITCHING, Esq.

DEAR SIR:—The Caloric Engine on board the ship "Underwriter," has now been in use for six months, and is found to be well adapted for pumping, loading and discharging cargo, warping ship, getting the anchors on or off the bow, jigging the chain cables abaft the windlass when weighing anchor, setting up rigging, and for many other purposes requiring much manual labor. The hoisting apparatus, as first applied, was found to be unadapted for use on board ship, and was seldom used, but the pumps have been worked by the engine whenever necessary, and will discharge more water in an hour, than the crew would do in four. The main pumps are thirty feet long with eight inch chambers, and when both of them are connected with the engine, will average forty strokes a minute—a result which no merchant ship's crew could accomplish, except for a short time; whereas the engine never tires, and I am convinced that at least four-fifths of the vessels that put back leaky, would never find it necessary, with a Caloric engine on board, in working order. There are many ships with a chronic leak, and to such it will prove a good investment, even if applied to no other purpose, enabling them to carry a smaller crew, and to do work at sea, which they pay for having done in port. The hoisting machine now in use on board the Underwriter, performs its work admirably, and is discharging a general cargo of iron, tin, salt, crates, casks, &c., at the rate of eleven tons an hour, hoisting every draught forty to forty-five feet, employing nine men besides the ship's carpenter, who attends



CALORIC HOUSE PUMPING ENGINE.

to the engine and hoisting machine. Its utility will be more apparent in foreign ports, where horses are not employed in hoisting, winches being almost universally used, while its entire freedom from danger, the small consumption of fuel, and the facility with which any one can manage it, are advantages requiring no comment. In a double-decked ship, where the depth of hold is from twenty to twenty-three feet, a better result would be obtained, as ten feet would be saved in every hoist, which, consequently, would be more frequent. The engine readily lifts 1200 lbs. with a single whip purchase, and where the cargo is such that every load can be approximated to that weight, it will deliver on the dock from the lower hold of any ship, fourteen tons an hour, allowing for all incidental delays. In forty-nine minutes it landed on the dock from the Underwriter's lower hold, seven grindstones weighing nearly two tons each. I take great interest in its operation, and look upon it as a success.

And now, that the hoisting part of it works so satisfactorily, I am confident that I shall soon be able to demonstrate by facts and figures that it is a money-saving machine, which, to matter-of-fact owners, will be more convincing than the prospective saving of a ship from sinking. If the underwriters would reduce the premium on a ship supplied with an engine, they would promote their own interest as well as the ship's. You are at liberty to publish this letter, if it will be of any service, and to refer any one to the ship Underwriter, where the engine, if in operation, will speak for itself.

I am yours, &c.,

JOHN P. ROBERTS.

INGENIO DE LA SIERRA, *February* 24, 1860.

JOSEPH ANTO. PESANT, Esq.

DEAR SIR:—The Ericsson Engine which you put up on this sugar estate, has worked entirely to my satisfaction, and its results have been the best that could have been wished.

Although of very small size, and moving a sugar mill, the rollers of which are not more than twenty-six inches in length by sixteen

in diameter; its work exceeded that of the old ox-mill of this sugar estate, whose rollers are 38 inches in length by twenty-eight in diameter. With this old mill driven by twelve oxen*, the greatest quantity of cane juice that we ever have been able to get, has been twelve boilers full in twenty-four hours; whilst with the small mill driven by the Ericsson engine, we have filled fourteen boilers in the same time; with this important additional advantage, that the cane is expressed much better. I have calculated that the same quantity of cane renders thirty per cent. more sugar than by the old mill driven by oxen.

Besides, the bagasse comes out almost dry, and with two or three days' sunning is ready for the furnace, whilst the bagasse from the old mill takes eight or ten days to dry up.

Yours, &c.,

MANUEL ANGUERA.

HAVANA, BATABBANO, *April* 20, 1860.

ANTONIO TOMASSICH, Esq.

DEAR SIR:—Perhaps you are surprised at my not having written you since the Caloric Engine was put up; but I did not wish to do it until I was entirely convinced of its complete success.

In two minutes it fills up a pipe of water, and in one hour and a quarter it dries up the well.

This is abundantly sufficient for my purpose; and having worked with regularity, I consider the work well done, and the engine to be what you represented.

If you think it may be useful to you to say what is true about the simplicity, regularity and small consumption of fuel of the engine, I am ready to give you any testimony, as too much cannot be said of its advantages.

For your guidance, I will add that that the well is twenty-seven

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* Oxen are changed every two hours. The "La Sierra" plantation had NINETY-FOUR OXEN for grinding alone.

feet deep and fifteen feet wide, has five feet of water, and the engine making thirty-two revolutions per minute, empties it in less than one hour.

The tank forms a square of thirty-six feet, and is three feet deep; and by emptying the well three times, is filled up; that is to say, in less than three hours' work. I have also to inform you that I burn wood in the furnace, and the expenditure in fuel is insignificant.

Yours, &c.,

MARIANO POY.

TRANSCRIPT OFFICE,
BROOKLYN, *June 28th*, 1859.

GENTLEMEN:—I have been running my large double cylinder newspaper press with one of your 24-inch Caloric Engines for the last three months, and since my *boys*, who have entire charge of it, got the hang of it, it has given me the most perfect satisfaction. I trust it entirely to their charge, as well as the press, even without a care, and never hear of anything wrong. I shall attach a job press as soon as possible, for I have surplus power. The beauty of it is, however, I am insured in four offices, and no one, when their officers had examined it, ever spoke of extra insurance over the hand presses of other offices. I write my editorials directly over the engine, and have never once thought of being blown up, for there is nothing to blow up; there is nothing there that can be converted into explosive gas. I have been conversant with *steam* for many years, and while I know there is no effect without a cause, I also know there is something mysterious in steam, that neither the theory of the philosopher or the skill of the practical man can explain. I have seen, on the western waters, friends and neighbors scattered in a moment through the air and water—have beheld them bleeding, mangled, groaning, dead, and have taken the oath of the dying engineer, that the water was over the top of the flues; have seen flues collapse with the water line two inches above the top of the flue—have looked with contempt upon the futile efforts of Congress to regulate the use of steam, of which the members know nothing.

In 1847-8, with several scientific gentlemen, I engaged in experiments in steam. Some of the results were astonishing, and served to show us we yet knew little of it. We constructed a small boiler, weakest in the head rivets—raised the steam to 30 atmospheres, or 450 pounds to the inch, without straining it; reduced it to two atmospheres, exhausted the water, and on throwing in water, exploded it, burying the head in a tree. We proved that by raising the heat six degrees only above the explosive point, the iron threw off the oxygen and the gas ceased to be explosive; that two ounces of iron would convert 30,000 feet of steam into explosive gas. Copper boilers, copper rivets, and copper flues and heads would be safe if all iron is kept from contact with steam; but copper is too expensive and too soft for general use as boilers and flues.

I confess that my study of and experiments in steam have convinced me, that, like fire, it is a powerful servant, but a terrible master, and like fire it sometimes becomes the master without any solvable cause by our known philosophy. I therefore much prefer the use of your Caloric Engine, that I *know* has no explosive agent in it, and yet works cheaply and without an *engineer*.

Yours, truly,

JAMES E. WHARTON, *Editor and Proprietor.*

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335 BROADWAY, COR. OF WORTH,
NEW YORK, *Feb. 15th*, 1859.

DEAR SIR:—The twelve-inch Caloric Engine which I purchased of you, for the purpose of forcing water to the top of my (the Moffat) building, performs its duty in a perfectly easy and reliable manner, and to my entire satisfaction.

WM. B. MOFFAT.

J. B. KITCHING, Esq.

WORCESTER, *Feb. 22d*, 1859.

J. B. KITCHING, Esq.

DEAR SIR:—We are certain that you will be glad to know how well the twelve-inch engine is doing. Without being able to say

how much it really is doing, from the nature of the work performed, we can speak of it in high commendation as being everything which it has been recommended to be, performing the work to our entire satisfaction, with great economy of fuel, not to exceed half a bushel of coal per day. The escape heat, with the hot air which is thrown out at every stroke, we are now applying to a small furnace, which, we have no doubt, that we can turn to good account.

Respectfully yours,

I. WASHBURN & CO.

NEW YORK, *July 6th*, 1859.

J. B. KITCHING, Esq.

DEAR SIR:—In reply to your favor of this date, making inquiry as to the working of the Caloric Engine and pump, which you put up for me at my house in Manhattanville, I have pleasure in stating that it works to a charm. It fills the tank in about two hours' pumping, which is sufficient supply for half the week. To fill this tank by hand pumping would require the labor of a man for a whole day. Any man of average intelligence can work it, and the amount of fuel used is a mere trifle. It is, therefore, extremely simple, and every way economical.

It is true that it has been in operation at my house for a short period, say three months—but I see no reason why it should not continue to do its work as well for many years. I have great faith in it; and believe that in this age of labor-saving inventions, it is destined to take a front rank, and work a revolution in domestic, as well as commercial and manufacturing economy.

Very truly yours,

D. DEVLIN, 258 *Broadway*.

NEW YORK, *Dec. 8th*, 1859.

JNO. B. KITCHING, Esq.

DEAR SIR:—The 18-inch Caloric Engine purchased from you last spring, we find a complete success. It requires no more attention